

FIG. 1

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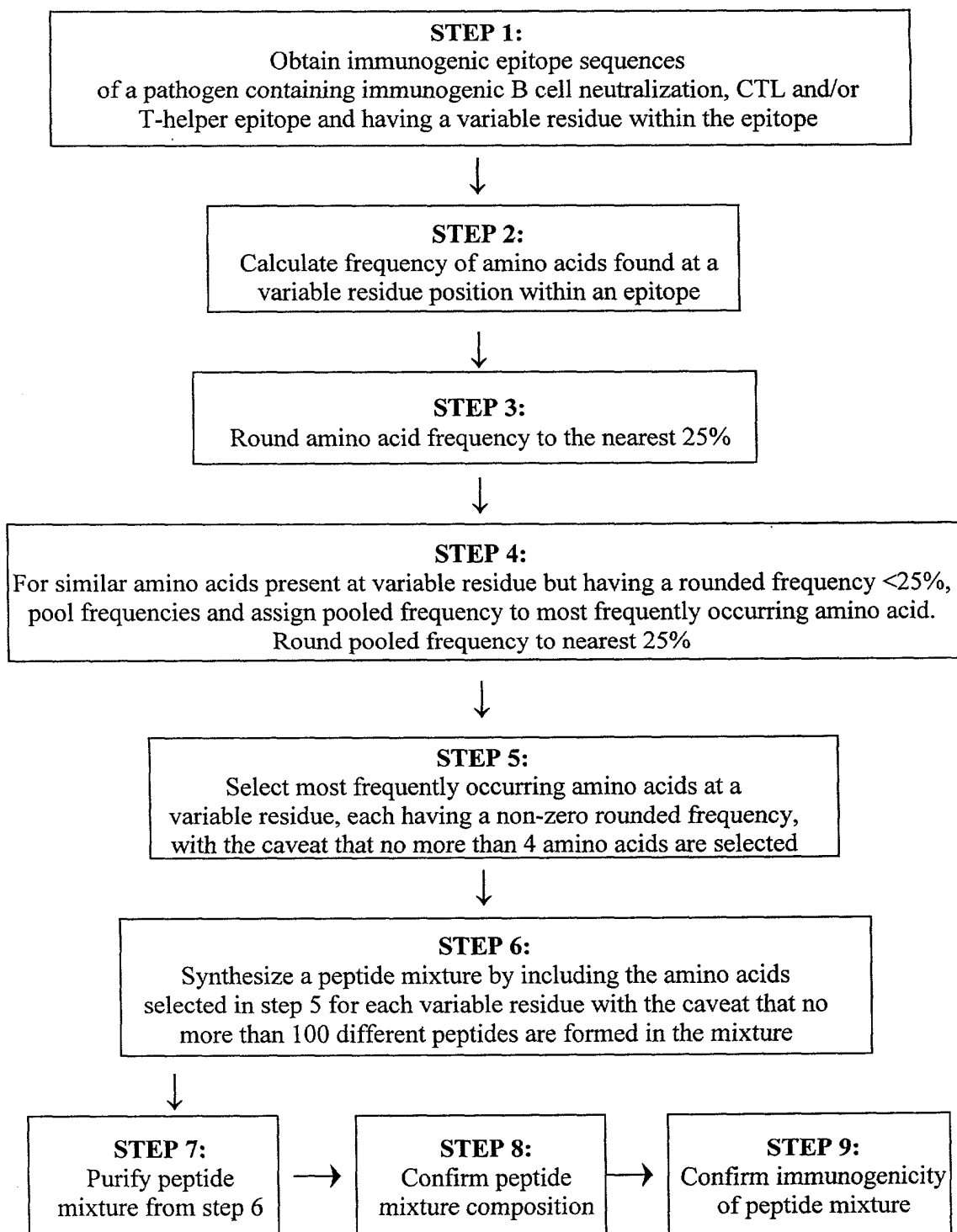


FIG. 2

position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
% 1 <sup>st</sup> AA added	100	100	75	100	100	100	50	100	100	100	100	50	50	100	100	50	100	50	100	100	100
1 <sup>st</sup> AA	C	T	D	L	K	N	A	T	N	T	N	S	S	S	S	R	M	M	E	K	
% 2 <sup>nd</sup> AA added			25				50					50	50			50		50			
2 <sup>nd</sup> AA			N				D					T	T			E		E			
HIV-1 HEC 1																					
% 1 <sup>st</sup> AA added	100	100	75	100	100	100	50	100	100	100	100	100	75	100	50	100	100	100	50	100	100
1 <sup>st</sup> AA	F	Y	K	L	D	I	V	P	I	D	N	T	T	S	S	Y	R	L	I	N	C
% 2 <sup>nd</sup> AA added			25				50						25		50					50	
2 <sup>nd</sup> AA			R				I						D		N					S	
HIV-1 HEC 2																					
% 1 <sup>st</sup> AA added	100	75	100	75	100	50	100	100	100	100	75	100	100	100	100	100	100	50	100	100	75
1 <sup>st</sup> AA	T	S	K	S	I	H	I	G	P	G	R	A	F	Y	T	T	G	D	I	G	D
% 2 <sup>nd</sup> AA added		25		25		50					25							50			25
2 <sup>nd</sup> AA		R		R		R					Q							E			N
HIV-1 HEC 3																					
% 1 <sup>st</sup> AA added	100	100	100	100	100	50	100	100	100	100	100	100	100	100	75	100	100	100	100	100	100
1 <sup>st</sup> AA	F	N	S	T	W	F	N	S	T	W	S	T	E	G	S	N	N	T	E	G	S
% 2 <sup>nd</sup> AA added						25									25						
2 <sup>nd</sup> AA						S									W						
% 3 <sup>rd</sup> AA added						25															
3 <sup>rd</sup> AA						P															
HIV-1 HEC 4																					
% 1 <sup>st</sup> AA added	100	100	100	100	100	100	100	100	100	100	75	100	50	100	100	100	100	100	100	100	100
1 <sup>st</sup> AA	T	R	D	G	G	N	N	N	N	E	T	E	I	F	R	P	G	G	G	D	
% 2 <sup>nd</sup> AA added											25		50								
2 <sup>nd</sup> AA											S		T								
HIV-1 HEC 5																					
% 1 <sup>st</sup> AA added	100	100	100	100	100	100	100	100	100	100	75	100	50	100	100	100	100	100	100	100	100
1 <sup>st</sup> AA	T	R	D	G	G	N	N	N	N	E	T	E	I	F	R	P	G	G	G	D	
% 2 <sup>nd</sup> AA added											25		50								
2 <sup>nd</sup> AA											S		T								

FIG. 3

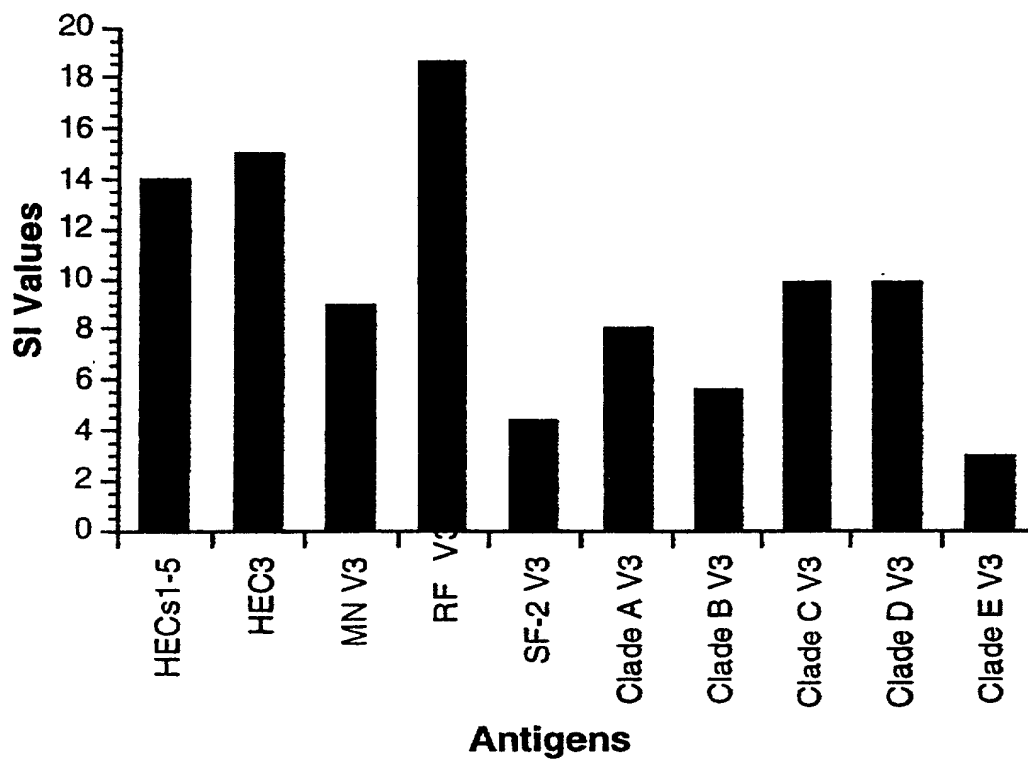


FIG. 4

MONKEY NO.:	ANTIGEN	ANTIBODY TITERS (weeks post immunization) <sup>b</sup>												
		2	4	6	8	11	13	16	20	37	40	76	96	104
25705	HECs 1-5	0	100	100	1000	>40000	>40000	>5000	>5000	1000	1000	1000	1000	1000
	HEC 1	0	100	100	500	>40000	>40000	>5000	>5000	1000	1000	1000	1000	500
	HEC 2	0	0	0	0	>40000	>40000	1000	500	100	100	100	100	100
	HEC 3	100	500	500	1000	>40000	>40000	>5000	>5000	1000	100	100	100	100
	HEC 4	0	0	500	500	>40000	>40000	>5000	>5000	1000	1000	1000	1000	1000
	HEC 5	0	0	1000	1000	>40000	>40000	1000	500	100	100	100	100	100
25598	HECs 1-5	0	100	100	100	>40000	20000	>5000	>5000	5000	1000	1000	1000	1000
	HEC 1	0	0	0	0	>40000	20000	>5000	>5000	1000	1000	1000	1000	1000
	HEC 2	0	0	0	0	20000	5000	1000	500	500	500	500	500	500
	HEC 3	0	100	100	100	>40000	10000	>5000	1000	1000	1000	1000	1000	1000
	HEC 4	0	0	100	100	>40000	10000	>5000	>5000	5000	1000	1000	1000	1000
	HEC 5	0	0	0	0	10000	5000	5000	1000	100	100	100	100	100

FIG. 5

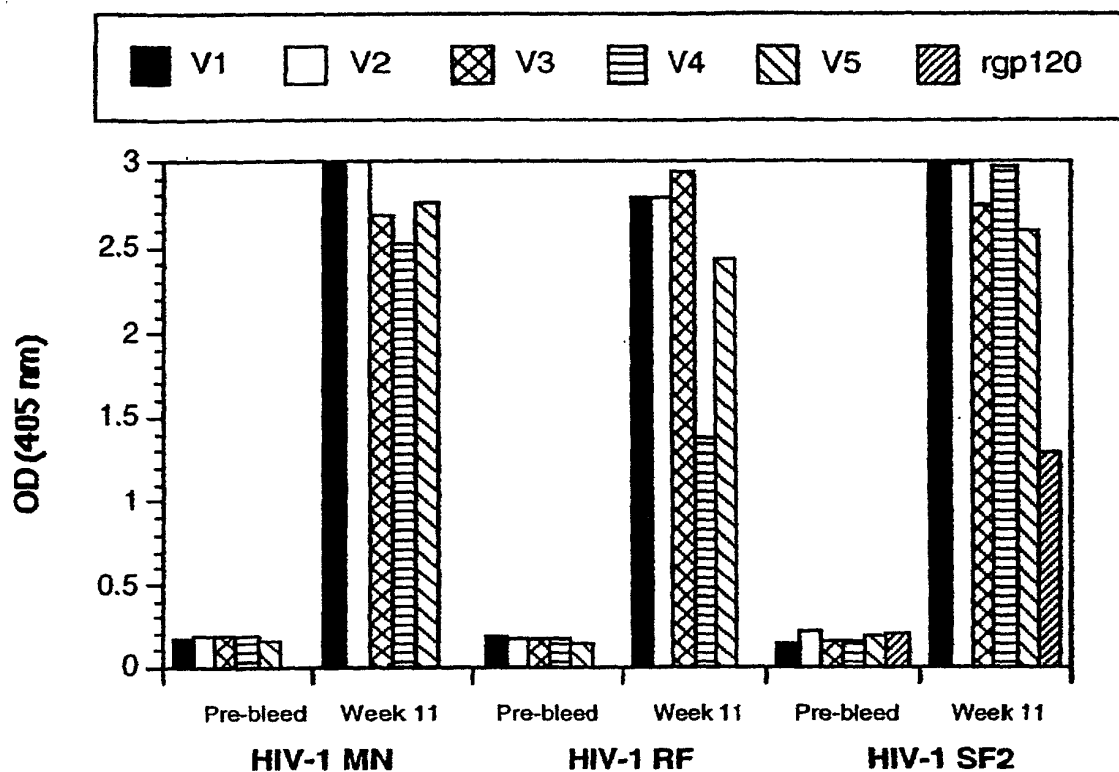


FIG. 6A

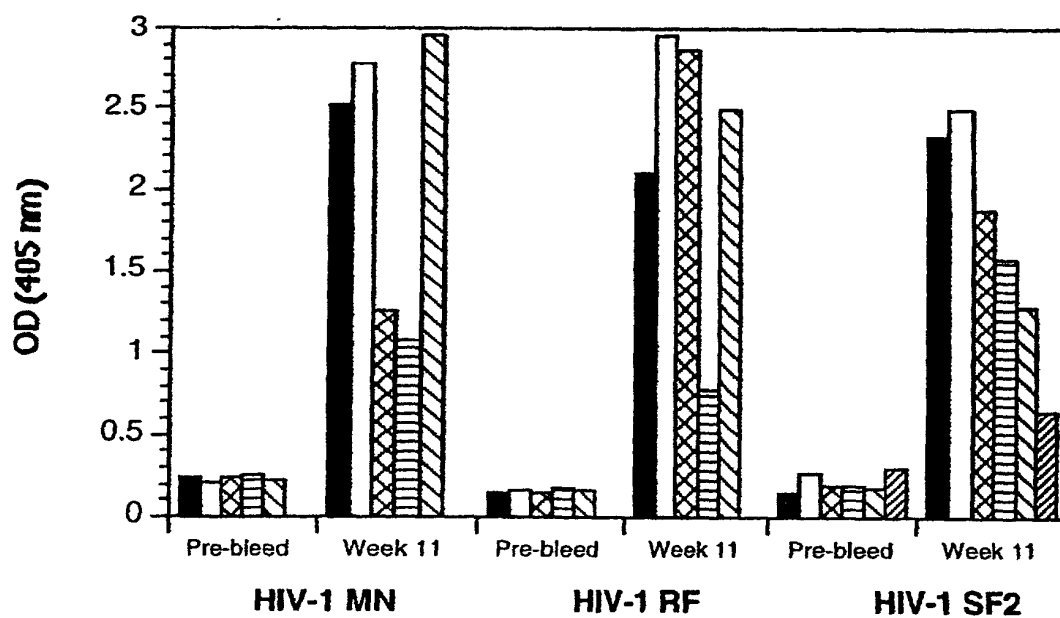


FIG. 6B

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Viral Isolate	Monkey No.	Weeks Post-Immunization	Neutralizing Antibody Titer Inhibition >80 % of RT
HIV-1 89.6	25705	Week 11	1:160
		Week 13	1:320
	25598	Week 11	1:160
		Week 13	1:320
	Positive Control		1:2560
HIV-1 IIIB	25705	Week 11	1:2560
		Week 13	1:1280
	25598	Week 11	1:640
		Week 13	1:320
	Positive Control		1:2560
HIV-1 SF162	25705	Week 11	1:20
		Week 13	1:40
	25598	Week 11	1:40
		Week 13	1:160
	Positive Control		1:1280
SIVmac239	25705	Weeks 11 & 13	none
	25598	Weeks 11 & 13	none
SRV-1	25705	Weeks 11 & 13	none
	25598	Weeks 11 & 13	none

FIG. 7

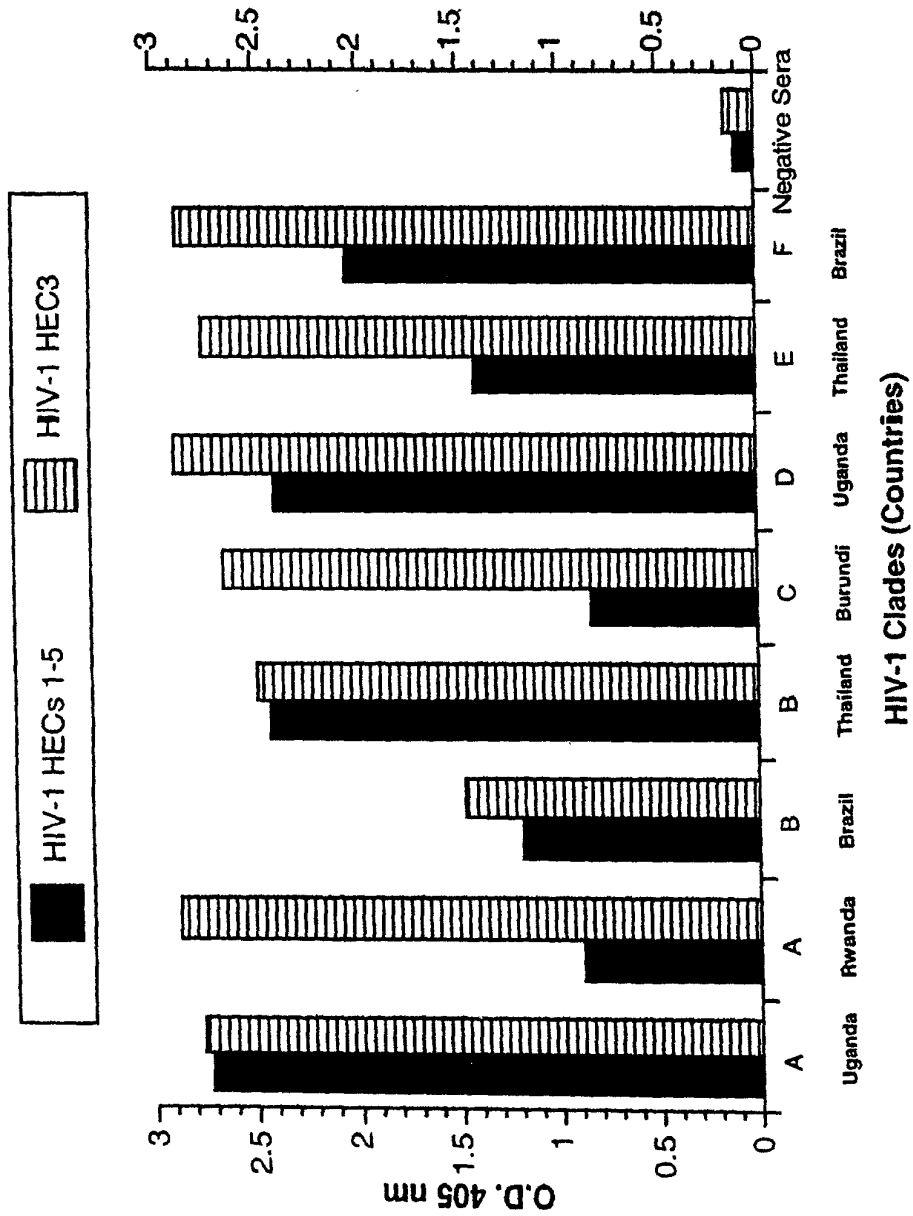


FIG. 8



position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
% added	100	100	100	50	100	100	100	100	100	100	100	100	100	100	100	100	50	50	50	100	100	100	100	100
AA	A	T	T	Y	V	T	G	G	A	A	A	R	A	T	A	G	L	A	S	L	F	S	P	G
% added				50													50	50	50					
AA				H													F	T	N					
HCV HEC 1																								
position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
% added	100	100	75	100	75	100	75	100	100	100	75	100	100	100										
AA	I	S	Y	A	N	G	S	G	P	D	Q	R	P	Y										
% added			25		25		25				H													
AA			H		D		G																	
HCV HEC 2																								

FIG. 9

position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21.
% 1 <sup>st</sup> AA	100	50	100	50	50	100	100	100	100	100	100	100	100	100	100	100	100	50	100	50	50
added																					
1 <sup>st</sup> AA	E	T	G	K	R	G	G	K	S	S	G	S	S	Y	P	V	L	N	V	S	Y
% 2 <sup>nd</sup> AA		50		50	50													50	50		50
added																					
2 <sup>nd</sup> AA		P		S	H													S	K		M
Influenza-based HEC 1																					
% 1 <sup>st</sup> AA	50	50	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	50	100
added																					
1 <sup>st</sup> AA	K	K	G	S	V	H	H	P	S	T	I	T	E	Q	T	S	L	Y	V	N	A
% 2 <sup>nd</sup> AA	50	50																	50	50	
added																					
2 <sup>nd</sup> AA	E	S																	Q	Q	
Influenza-based HEC 2																					
% 1 <sup>st</sup> AA	50	100	50	100	100	100	100	100	100	100	100	100	100	100	50	100	100	50	100	100	100
added																					
1 <sup>st</sup> AA	N	G	L	F	S	K	E	S	P	N	N	K	N	K	D	P	I	D	T	C	D
% 2 <sup>nd</sup> AA	50		50				50								50		50				
added																					
2 <sup>nd</sup> AA	K		F				K								F		M		E		
Influenza-based HEC 3																					
% 1 <sup>st</sup> AA	50	100	50	100	100	50	100	100	100	100	100	100	100	50	100	100	100	100	100	100	100
added																					
1 <sup>st</sup> AA	Y	V	S	V	S	S	S	R	I	A	S	R	P	K	V	R	G	Q	G	D	T
% 2 <sup>nd</sup> AA	50		50		50	50				50				50							
added																					
2 <sup>nd</sup> AA	R		T		V	T				G				W							
Influenza-based HEC 4																					

FIG. 10

202020"4302200T

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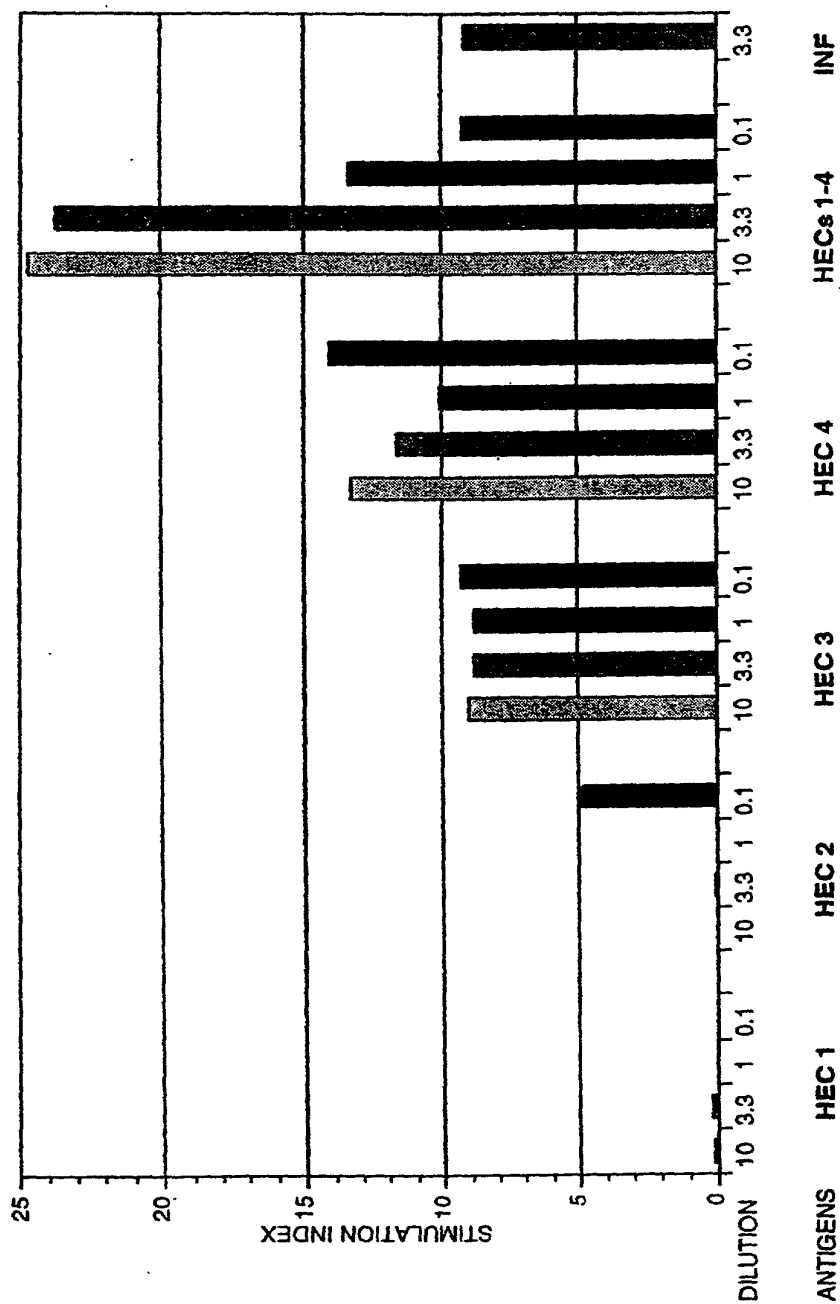


FIG. 11

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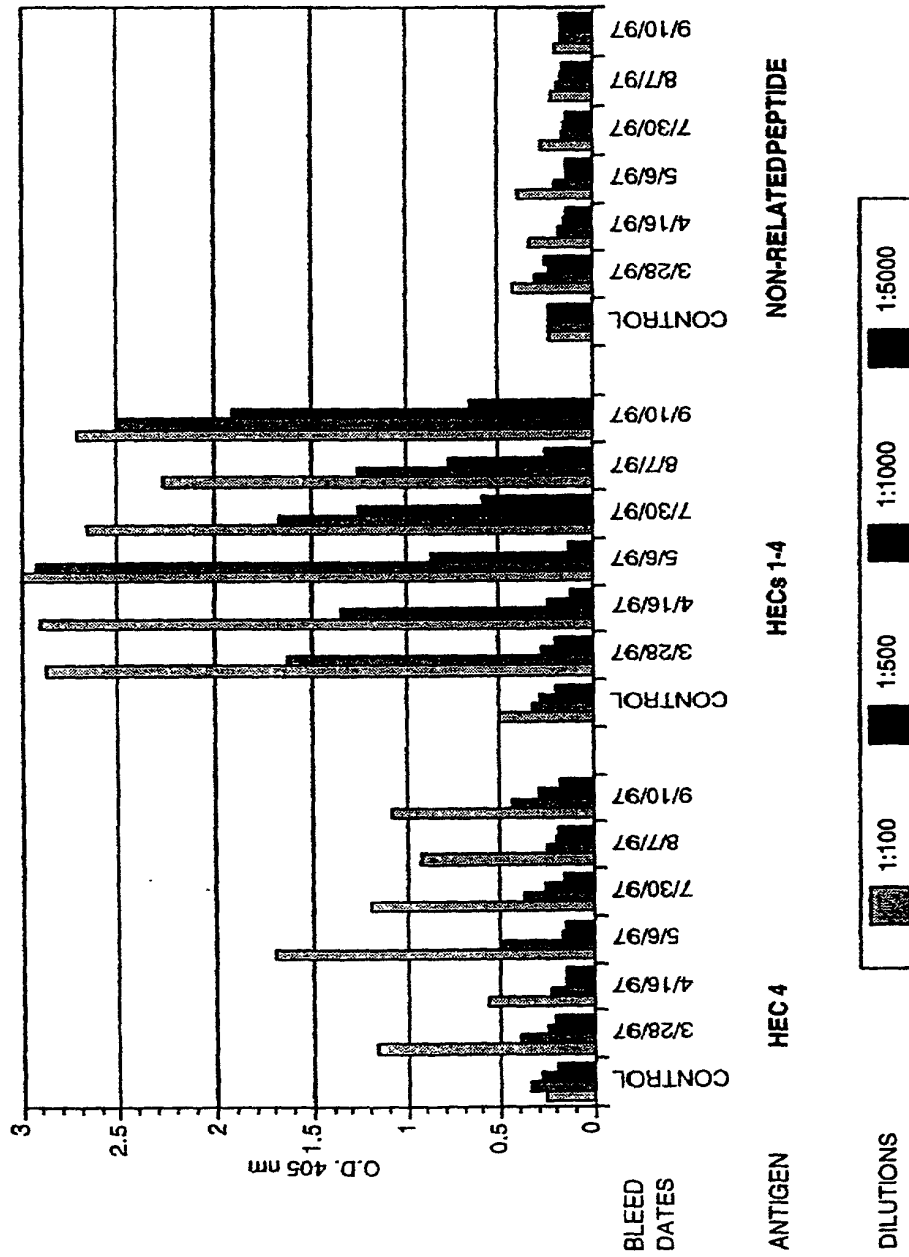


FIG. 12

20020413024007

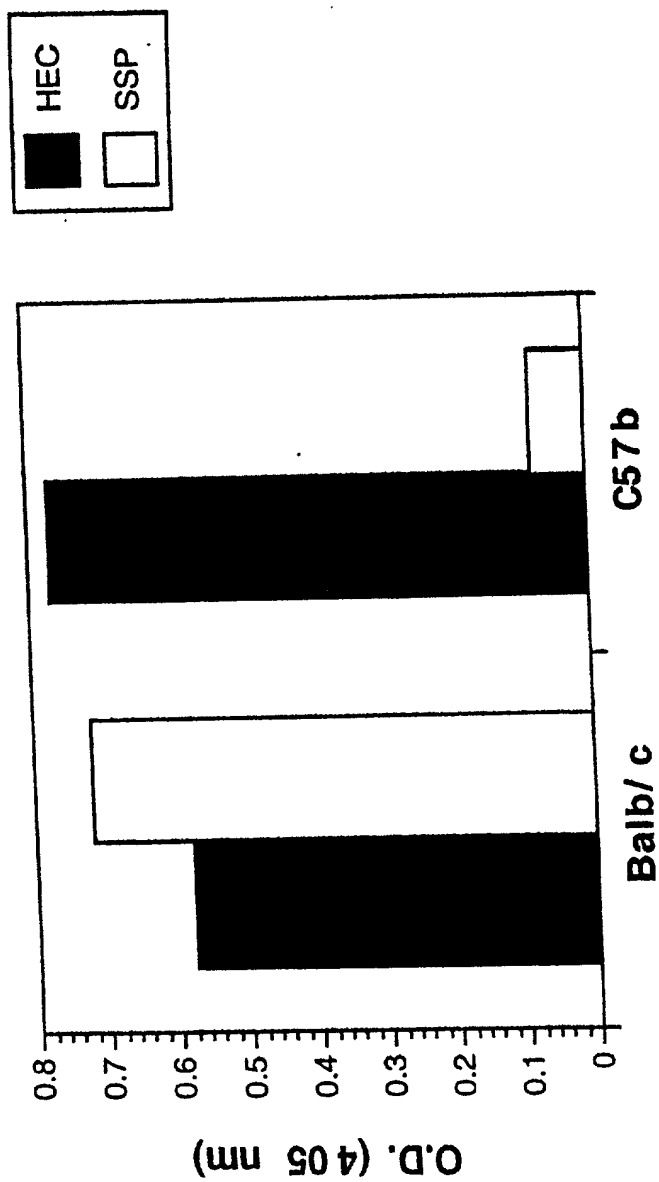


FIG. 13

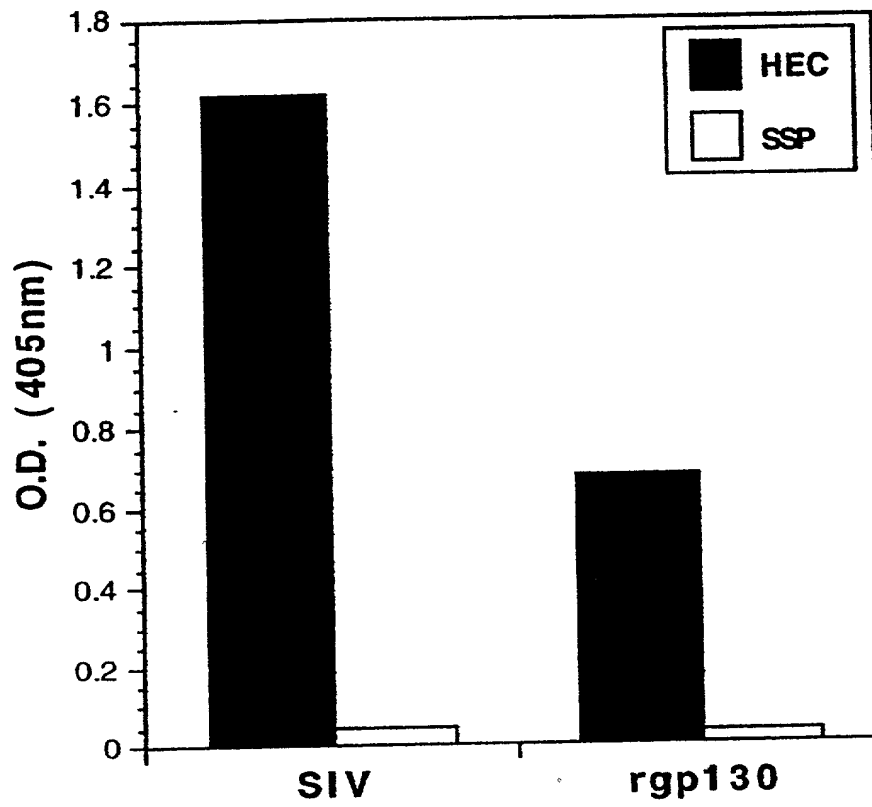


FIG. 14



FIG. 15

Construct	Amino acid(s) added at each position during peptide synthesis:																			
gp 120-1 64 variants	C	T	N	V	N	T	N	N	T	T	S	S	G	G	T	M	E	K	G	E
				D	L		N		T										E	I
gp 120-2 64 variants	M	T	T	E	L	R	D	K	K	Q	K	E	Y	A	L	F	Y	R	L	D
											V							K		
gp 120-3 32 variants	R	K	S	I	R	I	G	P	G	Q	A	F	Y	A	T	G	D	I	I	G
						H				R	T				T		E			
gp 120-4 32 variants	C	N	S	T	Q	L	F	N	S	T	W	S	T	E	G	S	N	N	T	E
			T	S	G						Y									
gp 120-5 48 variants	G	N	N	N	S	S	N	E	I	F	R	P	G	G	G					
			S	T	N		T		T											
			T																	

FIG. 16